

Exhibit G

Mike Graham

From: Merrill, Thomas Lad
Sent: Mon 3/03/2014 10:22 PM (GMT 0)
To: Mike Graham
Cc:
Bcc:
Subject: RE: ICC call and preparation for Friday.

Hi Mike,

Just got off the phone with James at Cd-Adapco

He's going to send me the files and then I will try to run the simulations.
He thought this would be the easiest and most cost effective way to do it.

Deliverable: C_d values for our vent and louvered vent. This can then be compared to video. If the comparison shows similarity -- we can do A LOT less physical testing -- saving time and money.

===

On the video front -- these video's recently sent by Brian show the louvered vent under slow flow or small differential height conditions.

"Hi Tom,
<https://www.yousendit.com/download/eINLT213NDRTSUNFTmNUQw>
Sure, click on the above link and then click "Download" next to each video. There are two CSD videos, one with debris and one without."

===

Are there any other videos showing the standard -- one chamber full the other empty tests?

Thanks Mike,
tom

Tom Merrill | Associate Professor | Mechanical Engineering | Rowan University
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O: 856.256.5343 | C: 609.558.1169 | merrill@rowan.edu | <http://tmerrill.pbworks.com/>

-----Original Message-----

From: Mike Graham [mailto:mgraham@smartvent.com]
Sent: Friday, February 28, 2014 10:26 AM
To: Merrill, Thomas Lad
Subject: Re: ICC call and preparation for Friday.

OK BUDDY, I THINK WE ARE AS GOOD AS CAN BE EXPECTED. THANKS MIKE

On 2/28/14, 10:18 AM, "Merrill, Thomas Lad" <Merrill@rowan.edu> wrote:

>Mike
>
>I'm running out the door. Everything looks good.
>
>Just realize that the plot of C_d vs time_elapsed ASSUMES a 25ft^2
>chamber footprint.
>
>This IS the value that BILL uses.
>
>Take care & good luck. Thinking +.
>
>tom
>
>
>Tom Merrill | Associate Professor | Rowan University - Mechanical
>Engineering Rm 231 Rowan Hall | 201 Mullica Hill Rd, Glassboro NJ
>08028 | 856 256
>5343
>
>

>From: Mike Graham [mgraham@smartvent.com]
>Sent: Friday, February 28, 2014 9:54 AM
>To: Rebecca Quinn; Bill Coulbourne
>Cc: Merrill, Thomas Lad
>Subject: Re: ICC call and preparation for Friday.
>
>Attached is the PP to use as a path or agenda for the meeting.
>At 10 let just discuss a quick strategy.
>
>Call 605 475 4810 then 793343#
>
>From: <Merrill>, "Thomas L."
><Merrill@rowan.edumailto:Merrill@rowan.edu>>
>Date: Friday, February 28, 2014 at 1:25 AM
>To: Mike Graham <mgraham@smartvent.commailto:mgraham@smartvent.com>>,
>Rebecca Quinn <rcquinn@earthlink.netmailto:rcquinn@earthlink.net>>,
>Bill Coulbourne

><bill@coulbourneconsulting.com<mailto:bill@coulbourneconsulting.com>>

>Cc: Tom Little <tittle@smartvent.com<mailto:tittle@smartvent.com>>

>Subject: RE: ICC call and preparation for Friday.

>

>Hi everyone,

>

>Please take a look at the attached file demonstrating that the Smart

>Vent testing can predict reasonable C_d estimates with debris.

>

>While it's only one test I do think we have demonstrated that our

>performance tests can be used to predict C_d.

>

>Please reach back if you have questions.

>

>I hope this is helpful.

>tom

>

>

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>

>

>

>From: Mike Graham [mailto:mgraham@smartvent.com]

>Sent: Wednesday, February 26, 2014 6:58 PM

>To: Merrill, Thomas Lad; Rebecca Quinn; Bill Coulbourne

>Subject: ICC call and preparation for Friday.

>

>I had a good discussion with Gary this morning in preparation for

>Fridays call. He is the VP and a reasonable person. We both agreed that

>the Friday call will be between Rebecca, Bill, Gary and me. He understands

>the issues with the staff engineer and agrees he wants to listen. He

>also agreed that he would study all of the documents that I sent him

>this morning. Most importantly the description that Rebecca Drafted 6²

>hole covered with a slotted cap.

>

>When I asked him why his guy went back and is questioning already

>certified products, Gary said they don't like to do this but when they

>find issues that are so blatantly incorrect they have a duty to

>investigate.

>

>

>In our conversation today these are the three issues the icc just don't
>understand and don't agree with:
>
> 1. in their mind our performance tank test does not test Cd it only
>tests if the vent functions properly. I argued that Cd means flow and
>our tank is sized and water is flowing to test just that, the Cd. He
>said we don't think so and that's why we didn't increase the flow
>during the Ac revision hearings. I thought that was the entire idea
>behind the performance test. Can we show how they connect? We need to
>show that our performance test at both slow and fast flow proves that
>our Cd is correct. If not, wouldn't it have failed?
> 2. He said in their mind Table 2-2 Opening shape and condition means
>the gross area. He said the net area is used in the calculation. Again
>I referenced the 6² Rebecca pipe reference that he did not read yet. Is
>there some other document that helps explain this? Page 40 talks about
>where the Cd is derived from. They reference rectangular Weir and a V
>notch or Trapezoidal Weir. See below. This shows the opening shape as
>is in the description of table two, "Opening Shape and Condition". The
>shape is clearly the area that water can flow into and has nothing to
>do with the walls next to it. It also shows a free flowing opening I.E
>not screened.
> 3. The stacker issue encompasses two questions:
>a: Gary said no where does ASCE say you can stack vents more then 12²
>high. I explained that in 05 when we had this approved by the ICC,
>FEMA gave the ICC direction in a memo and incorporated this into TB1. I
>explained that it was normal for non engineered openings to be 24³ tall
>back then and as long as they are below the BFE its acceptable. He was
>open to seeing TB1. See Rebecca's letter from 05. I did not share this
>with Gary.
>b: He also said that if a stacked vent is actually 4 rectangular
>openings; two on top; and two on bottom, how can the CD be the same as
>one opening that is the sum of the 4. He said its obvious that water
>hitting the center rails will slow it down so the cd should be less
>then the sum of all 4.
>
>Below is tb1 see page 18 for the stackable reference.
>
>http://images.smartvent.com/images/uploads/codes_and_certs/fema-tb-1.pdf
>f
>
>Below this diagram is my last email to them for reference.
>
>
>[cid:image002.png@01CF3423.21537110]
>
>

>

>

>From: Mike Graham [mailto:mgraham@smartvent.com]

>Sent: Monday, February 17, 2014 9:36 AM

>To: Shahin Moinian

>Subject: Re: SmartVent

>

>Dear Mr. Moinian, your comments on our relationship are much appreciated.

>In my 13 years we have built our business around honesty and integrity

>and have built confidence throughout the marketplace by our trusted

>relationship with the ICC and FEMA. I called Mr. Sims because he knows

>our history and knows the struggles that we were forced to endure when

>the ICC merged. He knows the year and a half battle to certify our

>product and as a matter of fact the wood wall and stacked model along

>with the AC was part of that dramatically laborious and costly process.

>Yet in the end we thought the result would be a stable ICC ESR.

>

>History:

>In a review with Mr. Mc Roy a few weeks ago I asked how the inclusion

>of "must submit calculations" to a the revised AC means we go to trial

>again. We spent two weeks researching the history of prior reviews on

>our coverage and performance testing to find that although the AC did

>not specically say submit calculations they were asked for and reviewed

>three different times over the course of 7 years. Yes the same calculations.

>At no time did any code change, at no time did our products change, and

>at no time did we have a law suit for defective products, and at no

>time ever have we even been given a report that our vents did not

>function as designed, actually we received multiple testimonies and

>awards that our products have saved many peoples homes. When I asked

>Mr. Mc Roy to review the history on our previous successful testimony

>he said "are you sure you want me to look at the past reviews, because

>I may find more mistakes". I think my request was fair and his threat came across clear.

>We spent hours trying to draft our history and prove that your inquest

>questions have been asked many times. This historical work fell on deaf

>ears and was ignored.

>

>In closing history, I would appreciate you to consider the

>ramifications to product manufacturers when their competitors add the

>requirement in words to existing AC's "must submit calculations". This

>once stable ICC ES evaluation that is the core of business stability is

>now unpredictable based on the Staff Engineers re-exam. On Friday I

>spoke to the technical officers of three large manufacturing companies

>that hold multiple reports, and they were all shocked.

>

>In our very detailed submission to Mr. Mc Roy we set out to prove our

>calculations were accurate and conservative. The work over the past

>weeks has been revolved around additional testing and detailed computer
>modeling to support detailed certifications from a PHD and well
>respected flood expert that our Cd is accurate. Both of these experts
>are different then the engineer that performed the original
>calculations and performance testing, and all three arrived at the same
>conclusion, that our .44 Cd is correct for all models including our
>stackers and wood wall models. In fact they agree that .44 Cd could have been larger.
>Performance testing in the fall showed that vents tested at flow rates
>20 times the standard still passed the debris test. Its the reason we
>argued so vehemently at the revisions hearing. Why would we argue to
>increase the flow if we were overrating our coverage?
>
>So where is the disconnect. Your attachment makes it clear that your
>measuring the gross area to get the shape for the table 2-2 chart and
>we and the industry measures the "net area" or the area that water
>flows through. Attached is a revised copy of the sheet you labeled
>"From submitted certification" Figure 1 and 2. In the model in figure
>2 - You used 8- 3/4 x 14-1/2 width to height ratio of 13.49 : 8.425=
>1.6 : 1 the gross size.
>We used 13.490 x 2.665 and 13.490 x 3.0 giving us two rectangular, long
>axis horizontal, short axis vertical at ratios of 5.06:1 and 4.496:1
>Clearly the horizontal is twice the vertical.
>In the same way the stacker has four rectangular slots that water flows
>through not one giant square.
>If this was the standard then instead of using 76 sq/in of net open
>area for our flow calculation we would have used a much larger gross
>area, but that does not make any sense.
>
>In closing, I am hopeful that your kind words about our long
>relationship mean you will review what I am submitting and unlike Mr.
>Mc Roy you will be open to listening to our explanation. It's the same
>explanation that has been accepted by many of your engineers since 2003
>and is the standard in the flood engineering world. Also please note
>that my call to Mr. Sims and this email to you is in an effort to clear
>our good name, and save American Jobs. Yes these changes, if
>implemented will cause chaos in the market and instability in our
>business and in the ICC ESR process.
>
>Over the past two days I have asked both FEMA and ICC code experts to
>weigh in, and all of them agree with measuring the net opening shape
>not the gross area. Below is an explanation using some basic examples
>to make our point.
>We have also discussed and made a detailed submission to the ASCE 24
>committee and are confident that the committee understands this
>disconnect and will soon vote to clear up any confusion. My request is
>two fold; one would be to please take a few minutes and review what I

>have submitted, and the example below, and two to consider that we have
 >worked dilligently to provide detailed technical performance data from
 >national experts. Unfortunately all of the performance data and expert
 >certifications were ignored and rectangular vs. square seems to be the
 >impasse. It was a very expensive waste of money and time, yet we were
 >confident that performance testing was the final decision maker. That
 >does not seem to matter.

>

>The March 15th deadline is soon approaching and I am confident that our
 >gross vs. net explanation will be acceptable, yet the ASCE 24 changes
 >will offer additional and non reputable clarification. With no pending
 >market defects, or customer complaints I would ask you to grant us an
 >additional 90 days to provide final accepted ASCE 24 language that I am
 >confident will answer all of your concerns, yet again I do feel like
 >our gross vs. net explanation will be acceptable.

>

>Thanks very much for your time and patience and I look forward to your
 >comments.

>Sincerely,

>

>Mike Graham

>

>

>Note from flood expert review:

>"This is getting beyond ridiculous. ASCE 24 isn't supposed to explain
 >all of the fluid mechanics behind something. It is not a primer on
 >basic fluid mechanics, our knowledge of which harks back centuries (I
 >myself have 5 texts books on the subject). They seem to lack a basic
 >understanding of fluid mechanics. A coefficient of discharge applies
 >to the orifice through which fluid flows. Thus it must apply to the
 >openings the net opening any solid obstruction is, by definition,
 >not part of the opening/orifice. The coefficient of discharge is a
 >function of the Reynolds number, which is based on the average velocity
 >in the pipe or through the orifice. The part that's blocked has no velocity.
 >(There is a point at which the solid, blocked part becomes negligible,
 >say a wire mesh, but then different characteristics of fluid flow
 >become important and thus mesh is treated differently each tiny
 >square isn't a separate orifice.)

>

>Suppose I have a 12" diameter pipe, it's easy to select the $C_d = 0.6$.
 >Now, suppose I put a cap on the end of the pipe and the cap has a
 >rectangular horizontal slot through which water can flow. Now the
 >discharge through the pipe is affected by the shape of the slot, and I
 >have to select a different C_d . Would ICC-ES have me ignore the cap and
 >slot, and make me use a coefficient for a circular orifice simply
 >because the pipe is circular? I should hope not! I would use a

>coefficient for the slot because that is the orifice through which
>water flows. Now, if I put a cap on that has two slots separated by
>solid material of the cap, I would have two orifices because the solid
>material separates the two orifices. If the cap had one rectangular
>slot and one square slot, I would compute the total discharge by
>applying the formula to the rectangular slot and to the square slot,
>and each would have a separate and different coefficient of discharge.
>I would compute the discharge through each and then add the results to yield the total discharge.

>

>This is exactly what you're doing. Because the SV unit is designed so
>that when functioning flow goes through two slots, the physics demands
>that each slot is as a separate orifice, and thus each slot has a
>coefficient of discharge. And for the stacker, which is simply two
>individual devices that are affixed to the same frame, the calculations
>for each slot don't change. For the wood-frame wall unit, the only
>question is whether the horizontal dimension is twice or more the
>vertical dimension (see ASCE 24, Table 2-2).

>

>24-05 2.6.2.2, #7, the factor A_o is the "Total net area of openings
>required" -- if the result tells the user how much net opening is
>provided by a device, then the only logical conclusion is that the NET
>opening of the device is what's important.

>

>TB 1, in the description of nonengineered openings, illustrates the
>same principle regarding net vs gross, where it is clear that if a
>device with a faceplate is inserted into an 8x16 opening, the gross
>8x16 opening is not measured, but the net open area of each "slot" in
>the faceplate is measured. In the air flow industry, each of those
>slots is treated as an orifice. Does ICC-ES make the air flow industry
>use the "gross area/shape" including that portion that is obstructed,
>when calculating air flow through a faceplate?"

>

>

>

>Mike Graham, CFM

>

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>

>Also see

>http://www.smartproductinnovations.com<http://www.smartproductinnovations.
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>
>From: Shahin Moinian <SMoinian@icc-es.org<mailto:SMoinian@icc-es.org>>
>Date: Thursday, February 13, 2014 at 5:16 PM
>To: Mike Graham <mgraham@smartvent.com<mailto:mgraham@smartvent.com>>
>Cc: Gary Nichols <GNichols@icc-es.org<mailto:GNichols@icc-es.org>>,
>Woods McRoy <WMcRoy@icc-es.org<mailto:WMcRoy@icc-es.org>>
>Subject: SmartVent
>
>Dear Mr. Graham,
>
>I hereby thank you for the e-mail you sent to Mr. Dominic Sims, the ICC
>CEO. I have discussed the matter with Mr. Woods McRoy and Mr. Gary
>Nichols, the VP of Engineering. Following that discussion, we came to
>the conclusion that despite of the fact that you have submitted a
>revision to ASCE to modify their ASCE 24, so long as the revision is
>not accepted, we feel it is prudent to stay with the current
>requirements outlined in the aforementioned document. Sound
>engineering judgment allows us to accept your value of 0.44 for the
>coefficient of discharge for the 15.75 x 7.75 inch units rectangular
>geometry. However, the same sound engineering judgment unfortunately
>disallows us to use the coefficient of discharge of 0.44 for a
>rectangular opening to be used for the 14 x 8.75 inch units and a
>square opening (16 x 16 inch units) which is what two vents stacked up
>on the top of each other will represent. Please also note that the
>gate itself provides for additional friction which we have chosen to
>ignore since the ASCE 24 does not speak to that in the table 2-2.
>
>Mr. Graham, please know that we treasure our relationship with you and
>have done our utmost to find a solution to this product evaluation
>challenge. However, considering the requirements outlines in ASCE 24,
>we have not found any other solution to this challenge.
>
>We look forward to hearing from you.
>
>Warm regards,
>
>Shahin Moinian, P.E.
>President
>ICC Evaluation Service, LLC
>Los Angeles Business/Regional Office

>5360 Workman Mill Road
>Whittier, CA 90601
>888-422-7233 x3559
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>
>
>
>Join us in Memphis for ICC's 2014 Committee Action Hearings in April.
>Experience cdpACCESS in action and help ensure the 2015 International
>Green Construction Code achieves the best in energy, water and cost
>efficiencies from sustainable construction. Register
>Now.<<http://go.iccsafe.org/l/25182/2014-02-03/4nr37>>
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